

**ABSTRACT OF THE DISCLOSURE**

5 A process for forming a surface modification on a polymer substrate and  
polymer substrates having such surface modifications. The process comprises the  
steps of absorbing a swelling monomer into the polymer substrate for a period of time  
in order to swell the polymer substrate; removing the swollen polymer from the  
swelling monomer; transferring the swollen polymer to a reaction mixture containing  
at least one functional monomer; polymerizing the functional monomer in the  
10 reaction mixture containing the swollen polymer substrate for a period of time; and  
removing the polymer from the reaction mixture. Because the surface modification  
produced by the process is a surface interpenetrating polymer network, the process is  
not sensitive to the reactive groups located on the surface of the polymer substrate.  
Further, the surface interpenetrating network bonds to the polymer substrate through  
15 catenary connections or other forms of chain entanglement and thus is quite stable.  
Polymer substrates having the surface modification of the present invention are  
capable of having a surface modification agent, such as heparin, adhere to the surface  
of the polymer substrate.